

CLAIMS:

1. A method for the prevention of insulin dependent (type I) diabetes comprising administering to a prediabetic individual a composition comprising an anti-VLA-4 antibody.
2. A method according to claim 1, wherein the anti-VLA-4 antibody selected from the group consisting of HP1/2, HP2/1, HP2/4, L25, and P4C2.
3. A method according to claim 1, wherein the anti-VLA-4 antibody is HP1/2, or a fragment thereof, capable of binding to VLA-4.
4. A method according to claim 1, wherein the anti-VLA-4 antibody is a humanized HP1/2 antibody, or a fragment thereof, capable of binding to VLA-4.
5. A method according to claim 1, wherein the composition is administered at a dosage so as to provide from about 0.1 to about 10 mg/kg, based on the weight of the prediabetic individual.
6. A method according to claim 1, wherein the composition is administered in an amount effective to coat VLA-4-positive cells in the peripheral blood for a period of 1-14 days.
7. A method according to claim 1, wherein the composition is administered in an amount effective to provide a plasma level of antibody in the prediabetic individual of at least 1 µg/ml.
8. A method according to claim 1, wherein the composition is administered prior to the development of overt diabetes, as measured by a serum glucose level of less than about 250 mg/dL.
9. A method according to claim 1, wherein the prediabetic individual is a human.
10. A method for the treatment of diabetes comprising administering to a mammal with a susceptibility to diabetes, an antibody, a recombinant antibody, a chimeric antibody, fragments of such antibodies, a polypeptide or a small molecule capable of binding to the α_4 subunit of VLA-4, or combinations of any of the foregoing, in an amount effective to provide inhibition of onset of diabetes.

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11. A method according to claim 10, wherein the antibody, polypeptide or molecule is selected from monoclonal antibody, H1/2; Fab, Fab', F(ab')₂ or F(v) fragments of such antibody; soluble VCAM-1 or fibronectin polypeptides; or small molecules that bind to the VCAM-1 or fibronectin binding domain of VLA-4.

12. A method according to claim 11, wherein the soluble VCAM-1 polypeptides comprise a VCAM-IgG fusion.

13. A method according to claim 11, wherein the composition is administered in an amount effective to provide a plasma level of soluble VCAM-1 polypeptides in the mammal of at least 10-20 µg/ml over a period of 1-14 days.

14. A method according to claim 11, wherein the soluble VCAM-1 polypeptides comprise VCAM 2D-IgG.

15. A method according to claim 10, wherein the composition comprises a plurality of anti-VLA-4 monoclonal antibodies or VLA-4-binding fragments thereof.

16. A method according to claim 10, wherein the composition is administered at a dosage so as to provide from about 0.1 to about 10 mg/kg of antibody, antibody fragment, polypeptide or small molecule, based on the weight of the susceptible mammal.

17. A method according to claim 10, wherein the composition is administered in an amount effective to coat VLA-4-positive cells in the peripheral blood for a period of 1-14 days.

18. A method according to claim 10, wherein the composition is administered in an amount effective to provide a plasma level of antibody or antibody fragment in the mammal of at least 1 µg/ml over a period of 1-14 days.

19. A method according to claim 10, wherein the composition is administered in an amount effective to provide a dosage of small molecule of about 0.1-10 mg/kg body weight/day over a period of 1-14 days.

20. A pharmaceutical composition effective to provide inhibition of onset of diabetes consisting essentially of a monoclonal antibody recognizing VLA-4 in a pharmaceutically acceptable carrier.

21. A chimeric molecule comprising:

a VLA-4 targeting moiety capable of binding to VLA-4 antigen on the surface of VLA-4 bearing cells and a toxin moiety.

5 22. The molecule of claim 21, wherein the VLA-4 targeting moiety comprises a portion of VCAM.

10 23. A method of treating a subject at risk for a disorder characterized by the presence of activated VLA-4 comprising administering to the subject the chimeric molecule of claims 21.

24. The method of claim 23, wherein said disorder is diabetes.

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